land, 142; Minnesota, 125; Iowa, 121; Indiana, 111; Wisconsin, 108; Tennessee, 105, and Virginia, 102. The comparison between birthplace and present location is equally interesting, illustrating as it does the westward drift, the concentration in States of large cities, and the disadvantage of foreign birth in the race for accomplishment. No occasion for criticising the book appears, though it may be suggested that its convenience might be increased in future editions by printing both the ordinary form of writing the name and the full forename in parentheses, after the manner adopted (but afterward abandoned on pecuniary grounds) by the Joint Commission of the Scientific Societies of Washington, thus: Gordon, Professor J. C. (Joseph Claybaugh). But even without this refinement, the book is admirably complete and convenient.

W J M.

SCIENTIFIC JOURNALS AND ARTICLES.

THE *American Journal of Science* for August contains the following articles:

Rotatory Polarization of Light in Media subjected to Torsion, by A. W. Ewell.

Lichenaria typa W. & S.. by F. W. Sardeson.

Studies in the Cyperaceæ, XI., by T. Holm.

Constitution of Tourmaline, by F. W. Clarke.

Determination of Tellurous Acid in presence of Haloid Salts, by F. A. Gooch and C. A. Peters.

Iodometric Method for the Estimation of Boric Acid, by L. C. Jones.

Method for the Detection and Separation of Dextro- and Levo-rotating Crystals, with Some Observations upon the Growth and Properties of Crystals of Sodium Chlorate, by D. A. Kreider.

Devonian Interval in Northern Arkansas, by H. S. Williams.

Note on a New Meteoric Iron found near the Tombigbee River, in Choctaw and Sumter Counties, Alabama, U. S. A., by W. M. Foote.

Orthoclase Crystals from Shinano, Japan, by C. Iwasaki.

SOCIETIES AND ACADEMIES.

BOTANICAL SOCIETY OF AMERICA.

THE fifth annual meeting of the Society will be held in Columbus, Ohio, August 18 and 19, 1899.

The address of the retiring President, Dr. N. L. Britton, upon the subject: 'Report of Progress of Development of the New York Botanical Garden,' will be given in the Chapel, University Hall, Friday evening at 7:30 o'clock. The lecture will be illustrated with lantern views. On the following day, Saturday, the regular sessions for the reading of papers will be held in Room 17, Townshend Hall, at 10 a. m. and 2 p. m. The following papers are already announced for the meeting, and others are to be expected when the full program is made up by the Council.

'Apetaly and Dicœciousness,' Charles Edwin Bessey.

'The Spore Mother Cells of Anthoceros,' Bradley Moore Davis.

'Symbiosis and Saprophytism,' Daniel Trembly MacDougal.

'The Effect of Centrifugal Force upon the Cell,' David Myers Mottier.

'The American Species of Arisæma,' Nathaniel Lord Britton.

'The Uredineæ occurring upon Phragmites, Spartina and Arundinaria in America,' Joseph Charles Arthur.

'Some notes upon Distribution of American Erysipheæ,' Byron David Halsted.

'Gametes and Gametangia of the Phycomycetes,' Bradley Moore Davis.

The first meeting of the Council will occur at 2:00 p. m., at the Chittenden Hotel, and the first business meeting, according to custom, at 4:00 p. m., in Townshend Hall, Room 17. A business meeting for the election of officers and new members and for the transaction of other business will be held at 9:30 a. m., Saturday.

GEO. F. ATKINSON,
Secretary.

DISCUSSION AND CORRESPONDENCE.

ANAGLYPHS AND STEREOSCOPIC PROJECTION.

AFTER an enthusiastic period some twenty odd years ago the interest in stereoscopic views suffered a reaction. The interest has been lately reawakened in many ways. In SCIENCE Professor Jastrow has already discussed some stereoscopic methods; in SCIENCE for July 14th of this year Mrs. C. Ladd Franklin makes special mention of pictures printed in two colors and urges the adoption of a method of stereoscopic projection. The following account may, perchance, contain some minor bits of information not already well known.

1. The color method of printing stereoscopic pictures was invented by L. D. du Hauron, of Algiers. Two blocks, *e. g.*, half-tone plates, are made from a pair of pictures taken in the usual way with the stereoscopic camera. The picture taken with the right-hand lens is printed in red ink on paper, that with the left-hand lens in blue ink directly over it. The result is a blurred picture. When this blur is viewed through a pair of spectacles consisting of blue glass for the right eye and red glass for the left eye the two pictures reach the eyes separately and appropriately. This occurs because to the eye looking through the blue glass the white paper and the blue printing appear—practically—an even blue background, while the red appears as a black picture; similarly, to the eye with red glass the blue print appears as a black picture on a red ground. These two pictures, reaching the brain separately, are there combined into a picture in three dimensions showing apparently a solid view in wavering purple light. The peculiar wavering light is the result of fluctuating binocular mixture and binocular strife.

The pictures have been sold as 'anaglyphs' for a number of years by the Comptoir Suisse de Photographie at Geneva. A few years ago they were sold by a Philadelphia agent and were marked 'Patent 8,20,95.' This is the patent-grant 544,666 of August 8, 1895, which states that the article was patented in France in 1891.

A peculiar effect arises from twisting the picture or the head while observing these pictures; the objects in the relief figure appear to move relatively to each other.

2. The projection of stereoscopic pictures by a double lantern is not so unknown in America as Mrs. Franklin supposes. In the fall of 1895 I had occasion to deliver a public lecture on vision and, not knowing how to do anything with binocular vision without some such method, I hit upon the idea of throwing the two parts of stereoscopic views on the screen in red and green lights and giving bits of red and green glass to the audience. The method proved a complete success at a lecture in the Brooklyn Institute. Since then it has been in regular use in my laboratory for studying the laws of binocular vision. I have, however, no claims to credit for the fundamental idea of the method. Some photographer seems to have previously projected two pictures in a similar way; the details of his process have not been accessible to me. The whole method was described and various technical hints were given in the *Scientific American*, 1895, LXXIII., 327. This method is now used by several colleges. A Philadelphia firm (Williams, Brown & Earle) is preparing to furnish the materials and a carefully selected set of slides to illustrate scientific and educational subjects. The equipment is so inexpensive for any one possessing a double lantern that the cost is hardly worth considering.

3. There is still another method of stereoscopic projection which is in some ways superior to the red-green method. The two pictures are thrown by two beams of white light, polarized at right angles, on to a corrugated silvered screen and are viewed by an eye glass composed of two analyzers at right-angles. As the inventor of this method, John Anderton, of Birmingham, England, was kind enough to donate a complete outfit to the Yale Laboratory, we have had the opportunity to use it regularly for instruction. The method is superior to the red-green method in projecting both pictures in white light, and the cost is not excessive. A complete description of it has been given in my 'New Psychology,' p. 423.

4. It may be technically justifiable to call the results of stereoscopic union by the term 'pictures in three dimensions,' but it is psychologically incorrect. The view seen by stereoscopic projection is—to the observer—the real thing. There is no picture effect about it when the thing is properly done; the relief and solidity of the objects appear just as real as in the case of real objects. Of course, it is physically impossible to have a group of exotic palms where the screen and lecture table were standing a moment ago, and the group seen lacks coloring. These factors give a slight unreality to such a stereoscopic view; the observer feels as though he were looking at a model. In the case of statuary or other objects where color is lacking or subordinate the reality is perfect; to

the observer ten feet or more from the screen there is no inferiority in the sensation he receives. In the case of ordinary stereoscopic views the reality is lessened by the small size; an ordinary view looks like a view into a model, but a view in life-size is a real matter. Curiously enough, a view larger than life-size is singularly impressive and fascinating.

The advantage is surely very great in getting a whole museum of statues or of natural history specimens, in keeping the collection in a single case, and in being able to show them at any moment by merely turning on the switches or stop-cocks of a double lantern.

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POT-HOLE VS. REMOLINO.

TO THE EDITOR OF SCIENCE: Something more than formal advocacy of a word is usually necessary for its adoption; it must survive by its own fitness. In so far, however, as individual recommendations may have weight I may say that I am in favor of Mr. O. H. Hershey's suggestion that the word remolino be used in place of pot-hole.

The objections to the use of the word remolino raised by Mr. F. F. Hilder in SCIENCE of July 21st do not seem to me to be well founded. Is it true that "the term pot-hole expresses the object to which it is applied more correctly than the Spanish word?" While the term may have been applied on account of the shape of the holes, it is more likely that it gained its use from a common belief that the holes were excavated by the Indians for cooking purposes. If this be the case the word pot-hole is more misleading than remolino, for the latter, at least, gives a correct suggestion as to the way in which the holes have been formed.

Again, in which sense can it be said that the word remolino is incorrectly used by the people of Colombia? Are such words as villain, charity and many others incorrectly used by us because we do not employ them in their original significance? Had the compiler of the Spanish dictionary in which Mr. Hilder sought the definition of the word remolino known of its use by the people of Colombia as a name for a rounded rock cavity made by an eddying current of water he would probably and very properly have given that in his list. Would the critic of nomenclature have then thought it incorrectly used?

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NOTES ON INORGANIC CHEMISTRY.

AN interesting paper on the cause of color in minerals by L. Wöhler and K. v. Kraatz-Koschlau has appeared in *Tschermak's Mitteilungen*. While many minerals are colored by organic substances, the quantity is too small for identification. In several cases, as in zircon and smoky quartz, the presence of nitrogen was proved, and from bases in celestine from Gembeck three different double platinum salts were obtained. Contrary to the view of Nabl, the coloration of amethyst is not due to ferric thiocyanate, as no sulfur is present.

The difficulty of identifying the inorganic coloring materials of minerals is no less than that of organic; indeed, it was found necessary to use synthetic processes exclusively. Chromium is the cause of color in many minerals. In the case of chrome garnets, chrome spinel, chrome diopside this is apparent, but is no less true in red and violet spinel, ruby, sapphire, oriental amethyst, green zircon and topaz from Villarica. It was not found possible to detect the chromium in ruby and sapphire, but on fusing alumina and barium fluorid with one-fifth per cent. of potassium bichromate the crystals of alumina obtained were chiefly colorless, but red, blue, yellow and green crystals were also found. From the color differences it is probable that the chromium is present in different oxydation stages. It was not found possible to color alumina by iron, even at very high temperature. In the Villarica topaz no trace of manganese was present. Wulfenite and vanadinite are also probably colored with chromium, though organic matter is also present. While titanic acid, and hence pure rutile, is colorless, the sesqui-oxid gives a dark brown color; hence the color of ordinary rutile is due to partial reduction of the titanic acid, a red tint being in part due to the presence of iron. The color of chrysoprase is due to the presence